Government Documents
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Longwood Medical Area

Attachment 4
Summary of Major Points, LMA Transportation Study, 1987.

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Existing Conditions Report

PARKING SUPPLY

- Sixty-six parking facilities, surface lots and garages in the LMA with a capacity of 8,061 parking spaces.
- 7,625 spaces are controlled by MASCO or MASCO-member institutions.
- Thirty-seven percent, or 3,000 spaces, are considered public.
- 1,397 curbside parking spaces along private and public roadways.
- 9,458 total on-site parking spaces.
- 2,277 total off-site parking spaces
- Total parking supply - 11,599 spaces

TRAVEL PATTERNS

- 28,300 people work in the LMA area (1980 U.S. Census)
- Of all work trips to the area, 40% are one passenger vehicles, 15.9% carpool, 28% use transit, and 18.6% walk or bicycle.
- Of the vehicle work trips that originate in Boston, 57% are by auto and 43% are by transit.
- Of the vehicle work trips that originate in the communities of Boston, Brookline, Newton, Cambridge, Somerville, and Quincy, 58% are by auto and 42% by transit.
- Work trips from these six communities account for 83% of all transit work trips to the LMA and 54% of all auto work trips to the LMA.
- The majority of work trips occur between 6:30 AM to 9:00 AM and 2:30 PM to 6:00 PM.
- In the LMA , "through" traffic makes up 65% of the total AM and PM traffic.

- During the PM, up to 63% of all traffic on Brookline Avenue is "through" traffic. On Longwood it's 58%.

TRAFFIC CHARACTERISTICS

- Between 1975 and 1987, traffic volumes on Francis Street have increased by 10,000 vehicles from 5,000 to 15,000 (200% increase).

- Traffic on the Riverway has increased by 6,000 (30%) and on Longwood Avenue east of Brookline Avenue by 25% or 3,000 vehicles.

- Traffic has decreased on Avenue Louis Pasteur by 3,000 vehicles (38%) due to intersection modifications at The Fenway.

- Brookline and Huntington Avenues and the Riverway each carry between 25,000 and 27,000 vehicles per day (VPD). Of the three, Brookline Avenue carries the greatest volume.

- Brookline and Longwood Avenues have the slowest travel times of all north/south and east /west roadways in the LMA.

- Francis Street appears to be slightly more heavily used than Longwood Avenue for east-west travel (15,300 vpd versus 14,600 vpd), although only on the roadway segment between Brookline Avenue and the Servicenter garage.

PROBLEM INTERSECTIONS AND ROADWAY SEGMENTS

- The Riverway at Brookline and Huntington at South Huntington operate at deficient levels of service (LOS E-F) in the AM peak period.

- Also during the AM peak period, The Riverway at Brookline Avenue and Brookline Avenue at Francis Street are operating at capacity.

- In the PM peak period, The Riverway at Longwood, Riverway at Brookline, Brookline at Longwood, Huntington at Francis, and Huntington at S. Huntington operate at deficient levels of service.

- The Riverway at Brookline and Huntington at S. Huntington intersections are operating at capacity during the PM peak period.

- High accident intersections (4-10) per year are Fenway at Avenue Louis Pasteur, Brookline at the Riverway/Jamaicaway, Huntington at Francis, and Brookline at Longwood.

MASS TRANSPORTATION

- MBTA and MetroBus combined estimated ridership per weekday between the hours of 6:00 AM and 9:15 AM is 7,150 passengers.
- MBTA services to the LMA include bus routes 39, 47, 60, 65 and 66. Two branches of the Green Line, the Riverside and Arborway/Brigham Circle, run to the LMA.
- The MBTA's basic route structure of radial lines emanating from downtown Boston, is not well suited to the LMA.
- MBTA service is adequate for day shift employees but not for evening and night shift employees. The infrequency of bus service in the late evening is a deterrent to use by the second and third shift employees.
- The current Arborway service (Brigham Circle to Downtown) is perceived as being reliable.
- The Riverside line is most reliable but crowding is a problem.
- MetroBus parking shuttle routes M1 and M4 generally provide good service, although M4 does not have non-emergency midday service.
- MetroBus Route M2 from the LMA to Harvard Square in Cambridge offers excellent service, carrying approximately 2000 passengers per day.
- The most serious deficiencies for both the MBTA and MetroBus are information services and pricing.

1. Recommended Improvements Report

The LMA Transportation Study evaluated 54 improvement options and recommended the implementation of 35 measures. Two of the recommended measures will require additional study before they are endorsed by MASCO member institutions. They are: Brookline Avenue/Riverway One-Way Pair; and modification to Fenway/Avenue Louis Pasteur Intersection. Improvements are separated into six basic categories below.

a. Modify Fenway/Avenue Louis Pasteur Intersection:

This measure would entail minor geometric modifications at this intersection as well as the installation of a traffic signal to obtain the following benefits: improve traffic safety by removing the unsafe and illegal U-turn on The Fenway just east of Avenue Louis Pasteur; eliminate excess travel time required by the existing turn restriction and

relieve congestion at the Longwood/Brookline intersection, through which vehicles must now travel to reach Park Drive from Avenue Louis Pasteur; and improve pedestrian safety at the crosswalk on the west side of the intersection. Potential delays on The Fenway could be minimized through: the use of an actuated signal which would give Fenway traffic a green light except when a change was actuated by a vehicle on Avenue Louis Pasteur or by a pedestrian; the provision of an exclusive right-turn lane on Avenue Louis Pasteur, and installing the detection loop only under the through lane. In addition, the signal could be coordinated with The Fenway/Brookline Avenue signal. Additional analysis of the potential negative impacts on the LMA and the neighboring residential communities is required prior to receiving endorsement by MASCO members.

b. Connecting Parking Facilities to Avenue Louis Pasteur

Connecting Avenue Louis Pasteur to some of the area's major parking resources will provide a "relief valve" for traffic by removing it from the more congested Brookline/Longwood intersection to the underutilized Avenue Louis Pasteur. Obtaining the necessary right-of-way would be required. Three alignments are possible: an existing driveway adjacent to Emmanuel College's Alumnae Hall, a parking lot adjacent to Boston English High School, and a driveway adjacent to Harvard's Vanderbilt Hall. Regardless of the option selected, there would be potential parking management concerns regarding the mixing of parkers from different facilities and a control plan will be needed to prevent through traffic from using the connector which is intended for authorized parkers and not as a public street.

c. Widen Longwood Avenue Between Binney Street and Brookline Avenue

A portion of the Massachusetts College of Art (MCA) site on the northeast corner of Brookline and Longwood Avenues should be used to widen Longwood Avenue to allow the number of westbound approach lanes to be increased from two to three. Assuming that redevelopment of the site is not completed by 1992 and no other improvements at this intersection occur, the widening would improve level of service on the westbound approach from "F" to "D" in the PM peak hour. While the intersection as a whole would still perform at LOS "F" the proposal's advantages include: the provision of more room to store the queue on the westbound approach so that it would back up past Binney Street less frequently; make it easier for trucks and buses to turn right on Brookline Avenue; have even greater positive impacts on the intersection when the MCA site is developed and could be financed through its redevelopment.

d. Signalization of the Riverway/Park Drive Merge

Signalization of this merge at the Sears Rotary and will have significant benefits for traffic flow and safety. Coordination with the existing signals would prevent traffic queues from one intersection from blocking adjacent intersections.

2. Other Roadway Improvements Not Requiring Construction

These measures, along with the northbound left-turn restriction at the Huntington/Longwood Avenue intersection in the section on circulation changes can restore most analyzed intersections to LOS C or better. Only the Riverway/Brookline intersection would remain deficient with LOS "F" in both peak hours. These measures alone can reduce the number of deficient intersections (LOS "E" and "F") from six to one in each peak hour. With the exception of the Brookline Avenue/Riverway intersection, which remains at LOS "F" in both peak hours, all analyzed intersections show improved LOS in the PM peak hour.

a. On-Street Parking Removal on Longwood and Brookline Avenues

In general, removal of on-street parking would increase the number of lanes available for moving traffic, increase overall safety by removing obstructions to visibility of pedestrians by drivers, and substantially reduce delays at key signalized intersections. Meter removal has the greatest positive impact on existing and future traffic congestion of all measures that can be implemented in the LMA.

On Brookline Avenue, removal of all curbside spaces between The Fenway and the Brookline Town Line would allow for five travel lanes: two through lanes in each direction and exclusive left-turn lanes at most intersections. Left-turn lanes have enormous potential to improve through traffic flow, because left-turning vehicles block a through lane while waiting for an acceptable gap in the opposing traffic. Projected 1992 left-turn volumes on Brookline Avenue are more than high enough to justify exclusive left-turn lanes.

On Longwood Avenue, removal of all 59 on-street spaces would make possible a two-lane eastbound approach to Brookline and Huntington Avenues at all times of the day. Traffic flow and safety would also be enhanced at the unsignalized intersections along Longwood Avenue. At these locations, the provision of one wide travel lane in each direction would enable through traffic to bypass turning vehicles.

b. Other Parking Removal

At Huntington Avenue's intersections with Francis Street, Longwood Avenue and Ruggles/Louis Prang Street, a daytime parking ban applied to approximately ten parking spaces on each Huntington Avenue approach would reduce delays by allowing the creation of exclusive right-turn lanes. The exact number of spaces on each approach will need to be determined.

c. Longwood/Riverway Traffic Signal Phasing

Longwood/Riverway traffic signal phasing changes are recommended because 1992 forecast traffic volumes leading to Level of Service "F" in both AM and PM peak hours, versus current LOS "D" and "E" in the AM and PM peaks, respectively. Deficiencies at this intersection arise from the need for four phases, including an exclusive pedestrian phase and a separate phase for northbound Riverway left-turns. Improvements are possible in both peak periods if the traffic signal phasing is altered to allow northbound left-turns and eastbound right-turns to move while pedestrians travel in the protected northside and eastside crosswalks: the south crosswalk would have to be discontinued but only 15-20% of all pedestrians crossing The Riverway at this intersection would be affected. The traffic signal's cycle length would be reduced from 160 to 90 seconds allowing coordination with Chapel and Kent Street traffic signals which are critical to the success of the plan; and pedestrians would benefit by having "Walk" intervals at 68 seconds rather than 138 seconds and having nearly double the number of crossing opportunities per hour.

3. Circulation Changes

a. Riverway/Brookline Avenue One-Way Pair

This measure, which requires additional evaluation prior to implementation is the only mechanism which will eliminate all LMA intersection LOS deficiencies in both peak hours and it eliminates the merge of northbound Riverway with eastbound Park Drive, thereby reducing congestion at the Fenway/Brookline Avenue signal. The analysis shows an improvement from LOS "C" to LOS "B" at this location but the actual improvement may be even greater because the analysis techniques underestimate the delays caused by the merge.

Under this plan (which would require no road widenings and would actually create additional parkland and pedestrian sidewalk), The Riverway would be re-striped for four southbound lanes, each with a minimum width of 11 feet. Parking along the east curb north of Plymouth Street could be retained. On Brookline Avenue, which would be one-way northbound from The Riverway to The Fenway, with a contraflow

southbound lane for trucks, buses and emergency vehicles, parking would be prohibited at all times in the southbound contraflow lane and prohibited between 6:30 AM and 7:00 PM in order to provide adequate northbound capacity during the day. Brookline Avenue would carry four 11-foot northbound lanes south of Longwood Avenue; at Longwood Avenue, the left-most northbound lane would be for left turns only, ant the segment north of Longwood Avenue would carry three northbound lanes all the way to Park Drive. The emergency vehicles could, for the most part, bypass stopped buses. At approach lanes would be provided in the contraflow lane to separate left-turn movements from through southbound traffic. Additional study is required to examine impacts on local land access.

4. Left turn Restrictions at Huntington/Longwood Intersection

Northbound left-turn restrictions at Huntington and Longwood Avenues were determined to be meritorious in reducing delays at this intersection by forcing left- or U-turning vehicles to turn at the Evans Way/Huntington intersection where an exclusive left-turn signal phase already exists. Even with forecast 1992 volumes, this intersection would still operate at LOS "C" in both peak hours. If combined with "other Roadway Improvements" recommended in the previous section, a LOS "B" would result in both peak hours at the intersection of Huntington and Longwood Avenues, compared with existing LOS "D" and forecast LOS "F" in both peak hours. The restriction would also be a safety improvement for pedestrians crossing Longwood Avenue in the west crosswalk because right-turning drivers have a better view of conflicting pedestrian traffic than have left-turning drivers.

5. Traffic Reduction Strategies

These strategies are designed to make driving, especially alone, to the LMA less attractive and to make traveling to the LMA by public transportation more attractive. The impacts of traffic reduction strategies on peak hour traffic level of service cannot be estimated because of the difficulty in reliably estimating the number of vehicle trips eliminated. However, the impacts of these strategies will be strongest at the Longwood Avenue/Brookline Avenue intersection.

Among the measures under this category include providing and marketing transit subsidies for employees; establishing ridesharing objectives and expanding ridesharing programs; and launching a marketing/educational campaign to keep people from driving alone to the LMA. MASCO has applied for, through the MBTA, and received a $100,000 grant from the

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Urban Mass Transportation Authority (UMTA) to form the LMA Transportation Management Association (TMO) to accomplish these demand management strategies

A second set of demand management strategies includes improvement of MBTA service on the Riverside and Arborway Lines, and on bus routes connecting the LMA to Ruggles Station and Roxbury-Dorchester.

6. Management Strategies

a. Enforcement of existing traffic and parking regulations.

This is critical to the success of all measures the benefits of which cannot be fully realized if restrictions are not vigorously enforced.

b. On street loading prohibitions between 7:00 AM and 7:00 PM

To improve traffic flow or at minimum to eliminate loading on arterials during the morning and evening peak periods.

c. Enforcement of construction management agreements.